

## STATEMENT OF LEGAL AND FACTUAL BASIS

Vaughan Furniture Company, Inc.  
T. George Vaughan Plant in Patrick County near Stuart, Virginia

Permit No. VA-30973

Permit Date: September 19, 2001

Registration No. 30973  
AIRS ID No. 51-141-0022

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Vaughan Furniture Company, Inc. has applied for a Title V Operating Permit for its wood furniture manufacturing plant located in Patrick County near Stuart off Rt. 58 at Rich Creek Corporate Park. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

## FACILITY INFORMATION

### Permittee

Vaughan Furniture Company, Inc  
P.O. Box 1489  
Galax, VA 24333

### Facility

Vaughan Furniture Company, Inc.,  
T. George Vaughan Plant  
Rich Creek Corporate Park  
Patrick County near Stuart, off Rt. 58

## **SOURCE DESCRIPTION**

SIC Code: 2511 - wood household furniture manufacturing. This is a household wood furniture manufacturing plant. The facility is located in Patrick County near Stuart, off Rt. 58 in the Rich Creek Corporate Park.

Overall, the plant dries lumber in steam heated drying kilns, performs various woodworking processes, assembles the furniture, and finishes the wood furniture. The finishes are primarily spray booth applied VOC based wood furniture coatings. The wood furniture MACT, 40 CFR 63 Subpart JJ, is applicable, as a "new" source. The facility has opted to use only VHAP compliant materials where required to meet the MACT as the only option as specified in the 8-28-96 NSR permit to construct the plant (no monthly averaging).

An unusual feature is that the facility was constructed in 1996-7 on a green field site. The DEQ new source review (**NSR**) air permit was issued August 28, 1996 and reissued 5-3-01. Initial startup was in March 1997. NSR permitting and startup were after the wood furniture MACT, 40 CFR 63 Subpart JJ, was effective December 7, 1995, but it was before Va. DEQ was delegated MACT authority. DEQ's NSR permit to build the plant required the facility to meet the MACT, and included part of the MACT wording.

Heat is supplied by burning dry hogged and smaller wood in the plant's current one (1) boiler. The boiler's backup fuel is spreader stoker coal. The 28 million Btu/hr rated input capacity boiler was constructed in 1996-7. It is subject to NSPS, 40 CFR 60 Subpart Dc. In addition, a second boiler similar to the current boiler received a NSR permit April 16, 1999, reissued 5-4-01, also subject to NSPS Dc, but has not been installed at this writing in June, 2001.

All woodworking dust emissions are controlled by three (3) baghouse fabric filtered air handling systems exhausting to atmosphere, except for enclosed closed loop cyclone material transfers and a few fabric filters that do not vent outside. No NSPS or MACT is currently applicable to this plant's woodworking dust.

The facility is a Title V major source due to:

- (1) potential to emit (PTE) emissions, primarily from the two wood/coal permitted boilers combined, exceeding 100 tons/yr for SO<sub>2</sub>, particulates, and CO,
- (2) actual emissions of VOC exceeding 100 tons/yr from finishing,
- (3) combined VOC VHAPS exceeding 25 tons/yr, and
- (4) individual HAP PTE exceeding 10 tons/yr for each of the following individual VOC VHAPS: methanol, toluene, xylene, methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK), ethyl benzene, and cumene.

The wood furniture MACT, 40 CFR 63 Subpart JJ, does apply to the facility, as a new source, normally applying primarily to finishing. No NSPS other than 40 CFR 60 Subpart Dc currently applies to anything at the plant. This facility is a PSD definition synthetic minor source due to the NSR permit limiting VOC emissions to less than 250 tons/yr. It is located in an attainment area for all pollutants.

## **COMPLIANCE STATUS**

The facility is inspected at least once per year. The facility was in compliance with the State Air Pollution Control Board Regulations during the last inspection, which was conducted on August 22, 2000.

## **EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION**

The emissions units are grouped as follows:

**B1 (Boiler #1)** Hogged and finer dry wood is the primary fuel. Spreader stoker coal is the standby fuel. 28 million Btu/hr input rated capacity.

**B2 (Boiler #2)** Hogged and finer dry wood is the primary fuel. Spreader stoker coal is the standby fuel. 28 million Btu/hr input rated capacity.

**W1 (Wood working)** This includes all woodworking equipment with dust emissions, including wood working equipment, wood hogging and pneumatic wood fuel material transfers. All wood dust emissions are controlled by 3 baghouses exhausting to atmosphere, plus closed loop cyclone material transfer and any internal fabric filters without exhausts to atmosphere.

**F1 (Finishing)** This includes all finishing and related VOC emissions, primarily 12 on-line and 3 off-line spray booths, related ovens, and all related VOC emissions. The wood furniture MACT, 40 CFR 63 JJ, does apply to this facility as a new source. Overspray particulates from all spray booths are controlled by spray booth dry fiberglass filters or equivalent at a minimum.

**G1 (Gluing)** This consists of typical wood furniture plant gluing materials and processes that try to steer clear of triggering MACT JJ applicability. There are NSR permit limitations to roll over into this Title V permit.

**MISC (Miscellaneous)** Includes steam heated lumber drying kilns K1, K2 and K3, and one emergency diesel fire pump FP. These would normally be listed as insignificant emissions units, but they have NSR permit limitations to roll over into this Title V permit.

## EMISSIONS INVENTORY

Emissions are summarized in the following tables.

1999 Actual Emissions from the DEQ emissions inventory.:

	Criteria Pollutant Emission in Tons/Year				
Emission Unit	VOC	CO	SO <sub>2</sub>	PM-10	NO <sub>x</sub>
B1, (Boiler #1).	0	16	1	1	2
B2, (Boiler #2).	0	0	0	0	0
W1, Woodworking, including hogging and wood fuel transfers.	0	-	-	6	-
F1, Finishing and related.	123	-	-	2.	-
G1, Gluing	0	-	-	-	-
MISC.	0	-	-	-	-
Total	123.	16	1.	9.	2.

1999 Facility Hazardous Air Pollutant (HAPS) Emissions from Title V permit application:

Pollutant	Hazardous Air Pollutant Emission in Tons/Year
Methanol, toluene, xylene, methyl ethyl ketone, methyl isobutyl ketone, ethyl benzene, cumene.	PTE is major (over 10 tons/yr PTE) for each individual substance listed.
Combined HAPs (VOC	PTE is major (over 25 tons/yr PTE) for combined HAPs

HAPS).	(VOC HAPS).
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#### **EMISSION UNIT APPLICABLE REQUIREMENTS – Refr. B1, Boiler #1.**

The plant has one\* (1) boiler, refr. B1. It is a 28 million Btu/hr input capacity English watertube boiler. The boiler's primary fuel is hogged and finer dry wood fuel, primarily from this plant. The standby fuel is pneumatically fed spreader stoker coal. Particulate emissions are controlled by two (2) multicyclones in series without reinjection.

\* A NSR permit was issued 4-16-99, reissued 5-4-01, for a second (2<sup>nd</sup>) similar boiler, refr. B2, but it hasn't commenced installation as of this writing in June, 2001, and may never be installed. It is the subject of the section following this boiler B1 section.

Boiler #1 was installed in 1996-97 in accordance with the 8-28-96 new source review (**NSR**) permit, reissued 5-3-01. That NSR permit has several limitations that are rolled over into this Title V permit. The boiler is subject to 40 CFR 60 Subpart Dc, the NSPS for small industrial boilers, primarily limiting SO<sub>2</sub> currently for this boiler. This boiler is not subject to any MACT (40 CFR 63) requirements at this time.

#### **Limitations - Boiler B1:**

1. Particulate emissions from boiler #1, an English wood and coal fired boiler, shall be controlled by the use of two (2) multicyclones in series, without reinjection, at a minimum.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 **NSRPC**\* 3)  
\* **NSRPC** = New Source Review Permit Condition)
2. Sulfur dioxide emissions from boiler #1, an English wood and coal fired boiler, shall be controlled by limiting the coal sulfur content. The coal sulfur content for the boiler shall not exceed 0.75 percent by weight per shipment. This corresponds to meeting the NSPS Dc SO<sub>2</sub> emission limit of 1.2 lbs/million Btu and is the way this plant meets this NSPS emission limit (no SO<sub>2</sub> scrubber).  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 **NSRPC** 5)
3. The approved fuels for boiler #1, an English wood and coal fired boiler, are wood fuel and coal, or DEQ approved equivalent. The wood shall be hogged and finer dry wood. Excluded is any wood which contains chemical treatments or has affixed thereto paint and/or finishing materials or paper or plastic laminates. A change in the fuels may require a permit to modify and operate. The principal fuel is the wood byproduct from this plant's woodworking processes.  
(9 VAC 5-80-110, 9 VAC 5-80-10, 9 VAC 5-170-160, 8-28-96 **NSRPC** 5)

4. Boiler #1, an English wood and coal fired boiler, shall consume no more than 15,330 tons per year of wood and 3,504 tons per year of coal, calculated monthly as the sum of each consecutive twelve (12) month period. Additionally, the total Btu input shall not exceed  $245.28 \times 10^9$  Btus during each consecutive 12 month period. This allows the boiler to operate at 100% annual capacity factor on wood fuel, or substitute coal for up to 40% annual capacity factor. Coal is usually not used unless there is not enough wood fuel during cold weather.  
(9 VAC 5-80-110, 9 VAC 5-170-160, 8-28-96 NSRPC 7)
5. Except as specified in this permit, boiler #1, an English wood and coal fired boiler, is to be operated in compliance with Federal requirements under 40 CFR 60 Subpart Dc, the NSPS for small industrial boilers, including this boiler.  
(9 VAC 5-80-110, 9 VAC 5-80-10, 9 VAC 5-50-410, 40 CFR 60.40c et seq, 8-28-96 NSRPC 8)
6. Emissions from the operation of boiler #1, an English wood and coal fired boiler, shall not exceed the limits specified below:

Total Suspended			
Particulate	0.3 lbs/ $10^6$ Btu input	8.4 lbs/hr	36.8 tons/yr
PM-10	0.3 lbs/ $10^6$ Btu input	8.4 lbs/hr	36.8 tons/yr
Sulfur Dioxide	1.2 lbs/ $10^6$ Btu input emission limit on a 30 day rolling average basis for the coal burned.		
		38.0 lbs/hr	
		33.6 lbs/hr on a 30 day rolling average basis for the coal burned	
			58.9 tons/yr
Nitrogen Oxides (as NO <sub>2</sub> )		13.7 lbs/hr	24.0 tons/yr
Carbon Monoxide		23.8 lbs/hr	104.2 tons/yr
Volatile Organic Compounds		0.4 lbs/hr	1.7 tons/yr

Annual quantities calculated as the sum of each consecutive twelve (12) month period.

(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-10, 9 VAC 5-40-900, 9 VAC 5-40-930, 9 VAC 5-50-410 (40 CFR 60.42c (Subpart Dc), 40 CFR 60.42c(e)(2), (g), & (h)(3) contain SO<sub>2</sub> limits), 8-28-96 NSRPC 9)

7. Visible emissions from boiler #1, an English wood and coal fired boiler, shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 27 percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-260, 9 VAC 5-50-80, 8-28-96 NSRPC 10)
8. Visible emissions from the coal storage silo shall not exceed five (5) percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-80, 9 VAC 5-170-160, 8-28-96 NSRPC 11)

#### **Monitoring/O & M/Recordkeeping - Boiler B1:**

The permit includes requirements for monitoring and maintaining records of all monitoring and testing required by the permit. The monitoring and records include:

1. Visible emissions periodic monitoring is required to assure control equipment maintenance and compliance with permit visible emission limits. This requires a weekly observation, and its recording, of the boiler to check for any visible emissions. If any visible emission is observed, the condition shall be corrected and recorded, or a 40 CFR 60 Appendix A Method 9 visible emission evaluation performed and recorded to check opacity compliance. Refr. 9 VAC 5-80-110 E.
2. Develop an inspection schedule, monthly at a minimum, and including an annual internal inspection of the multicyclones, to insure operational integrity of the boiler and multicyclones, and maintain records of inspection results.
3. Develop a maintenance schedule and maintain records of maintenance, have written operating procedures available, and train operators in the proper operation of the equipment and emission controls, and maintain an inventory of spare parts.
4. Boiler #1: The permittee shall maintain records of all emission data and operating parameters necessary to demonstrated compliance with this permit. The content of and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:

- a. The daily, monthly and annual throughput of wood and coal for the boiler. The annual throughput shall be calculated monthly as the sum of each consecutive twelve (12) month period.

The monthly and annual particulate and sulfur dioxide emissions in tons for the boiler. The annual quantity shall be calculated monthly as the sum of each consecutive twelve (12) month period. The emission factors, control efficiencies, and emission calculation equations used in these emission calculations shall be identified and readily available.

The particulate emission limits, 0.3 lbs/million Btu and the corresponding lbs/hr and tons/yr at rated capacity continuously, are assured of compliance when burning wood or coal by the two multicyclones in series combined with operator training, maintenance and maintenance records, inspections at least monthly and inspection records, and weekly opacity checks and opacity records.

Two (2) EPA Method 5 performance tests were performed on this boiler B1 in January, 1999 after initial startup of the boiler to verify the particulate emission compliance status. The dirtiest of the two measured emission rates was 0.262 lbs/million BTU. This demonstrated compliance with the NSR and Title V permit allowable 0.3 lbs/million BTU. When the measured 0.262 lbs/million BTU emission rate is multiplied by the 28 million BTU/hr rated capacity and 8760 hrs/yr, the maximum calculated actual emission rates are 7.34 lbs/hr and 32.1 tons/yr. All these particulate emission rate values verify compliance with all the 0.3 lbs/million BTU, 8.4 lbs/hr and 36.8 tons/yr permit limits, as predicted.

Note that the SO<sub>2</sub> 1.2 lbs/million Btu emission limit is met by burning only (1) wood fuel (essentially no sulfur) and (2) coal meeting the permit limit of 0.75 wt % sulfur content. This coal calculates to approximately 1.02 lb/million Btu [AP-42 emission factor: (38S lb/ton) x (S=0.75) x (1/28 million Btu/ton coal) = 1.02 lb/million Btu].

Tables follow listing emission factors and comparing emission limits and the calculation of actual emissions at throughputs limits:

**Wood (primarily fuel): (1.75 tph capacity; 15,330 tpy wood limit)**

Pollutant	EF	Calc em EF x 1.75 tph	Calc em EF x 15,330/ 2000	Permit em limit	
				pph	tpy



PM & PM-10	After control 4.19* ppt	7.3 pph	32.1 tpy	8.4 pph	36.8 tpy
SO <sub>2</sub>	Negl	Negl	Negl	33.6 pph	58.9 tpy
NO <sub>x</sub>	1.5 ppt	2.6 pph	11.5 tpy	13.7 pph	24.0 tpy
CO	13.6 ppt	23.8 pph	104.2 tpy	23.8 pph	104.2 tpy
VOC	0.12 ppt	0.2 pph	0.9 tpy	0.4 pph	1.7 tpy

\*(0.262 lb/million Btu measured) x (8000 Btu/lb x 2000 lb/ton) = 4.19 lb/ton wood after control

Coal (standby fuel): (1 tph capacity; 3504 tpy coal limit)

Pollutant	EF	Calc em EF x 1tph	Calc em EF x 3504/2000	Permit em limit	
				Pph	tpy
PM	After control (12 x 0.30)ppt	3.6 pph	6.3 tpy	8.4 pph	36.8 tpy
PM-10	After control (7.8 x 0.30)ppt	2.3 pph	4.1 tpy	8.4 pph	36.8 tpy
SO <sub>2</sub>	(38 x 0.75) ppt	28.5 pph	49.9 tpy	33.6 pph	58.9 tpy
NO <sub>x</sub>	11.0 ppt	11.0 pph	19.3 tpy	13.7 pph	24.0 tpy
CO	5.0 ppt	5.0 pph	8.8 tpy	23.8 pph	104.2 tpy
VOC	0.05 ppt	0.05 pph	0.1 tpy	0.4 pph	1.7 tpy

Except for particulate emissions when firing wood, all emission factors are AP-42 factors. The wood firing particulate emission factor is calculated from the worst case performance test measurement on this boiler. Because the calculated wood emission rates (the primary fuel) are at rated capacity for all 8760 hrs/yr, the calculated coal emission rates are not additive.

As seen in the above emissions tables, periodic monitoring is satisfied by the rated

capacity and monitoring for meeting the fuel throughput limits which adequately limit emissions to less than all permit emission limits without control devices with the following exceptions:

- particulates have controls and are predicted to be comfortably in compliance by meeting the throughput limits combined with the above I & M and weekly visible emission checks, and periodic monitoring for these, and
- CO emissions equal, but do not exceed, the permit limits at maximum wood throughput limits because the emission limits were based on the AP-42 emission factors for wood without an added safety factor. In this case, the capacity and periodic monitoring for meeting the fuel throughput limits are adequate periodic monitoring for CO because there will be no emissions exceedance within the fuel throughput limits, actual fuel throughput is far less than the permit maximum, and the CO emission limits could be increased significantly before triggering any concern for CO ambient air quality or PSD permitting.

5. Maintain records of fuel supplier certifications with each shipment of coal as required by NSPS Dc.

(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-50, 9 VAC 5-50-410, 8-28-96 NSRPC 13, 58, 59)

**Testing - Boiler B1:** The permit does not require source tests for boiler #1. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:

Pollutant	Test Method (40 CFR Part 60, Appendix A)
PM/PM-10	EPA Method 5, or DEQ approved method
SO <sub>2</sub>	Fuel analysis, EPA Method 6, or DEQ approved method
Visible Emission	EPA Method 9

(9 VAC 5-80-110)

**Reporting - Boiler B1:** Title V semi-annual reports of the results of monitoring and recordkeeping for each first and second half calendar year are required to be submitted to DEQ by each March 1 and September 1 respectively. Also, separate NSPS Dc required semi-

annual reports are required to be supplied to DEQ and EPA Region III by each March 1 and September 1 for fuel certifications for each coal shipment and owner certified statement concerning all the coal combusted.

(9 VAC 5-80-110, 9 VAC 5-80-20, 9 VAC 5-50-50, 9 VAC 5-50-410)

### **EMISSION UNIT APPLICABLE REQUIREMENTS – Refr. B2, Boiler #2.**

Boiler #2, refr. B2, is the subject of this section. A NSR permit was issued 4-16-99, reissued 5-4-01, for this second (2<sup>nd</sup>) boiler. The boiler will be similar to B1 that is already operating. However, B2 hasn't commenced installation as of this writing in June, 2001, and it is unknown at this time if it actually will be installed.

Boiler B2 is a 28 million Btu/hr input capacity boiler. The boiler's primary fuel is hogged and finer dry wood fuel, primarily from this plant. The standby fuel is pneumatically fed spreader stoker coal. Particulate emissions are controlled by two (2) multicyclones in series without reinjection.

Boiler #2 is subject to 40 CFR 60 Subpart Dc, the NSPS for small industrial boilers, primarily limiting SO<sub>2</sub> currently for this boiler. The 4-16-99 NSR, reissued 5-4-01, permit has several limitations that are rolled over into this Title V permit. The boiler is not subject to any MACT (40 CFR 63) requirements at this time.

### **Limitations – Boiler B2:**

1. Particulate emissions from boiler #2 a wood and coal fired boiler, shall be controlled by the use of two (2) multicyclones in series, without reinjection, at a minimum.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 4-16-99 **NSRPC**\* 3)  
\* **NSRPC** = New Source Review Permit Condition)
2. Sulfur dioxide emissions from boiler #2, a wood and coal fired boiler, shall be controlled by limiting the coal sulfur content. The coal sulfur content for the boiler shall not exceed 0.75 percent by weight per shipment. This corresponds to meeting the NSPS Dc SO<sub>2</sub> emission limit of 1.2 lbs/million Btu and is the way this plant meets this NSPS emission limit (no SO<sub>2</sub> scrubber).  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 4-16-99 NSRPC 6)
3. The approved fuels for boiler #2 are wood fuel and coal, or DEQ approved equivalent. The wood shall be hogged and finer dry wood. Excluded is any wood which contains chemical treatments or has affixed thereto paint and/or finishing materials or paper or plastic laminates. A change in the fuels may require a permit to modify and operate. The

principal fuel is the wood byproduct from this plant's woodworking processes.

(9 VAC 5-80-110, 9 VAC 5-80-10, 9 VAC 5-170-160, 4-16-99 NSRPC 6)

4. Boiler #2, a wood and coal fired boiler, shall consume no more than 15,330 tons per year of wood and 3,504 tons per year of coal, calculated monthly as the sum of each consecutive twelve (12) month period. (Note that these annual throughput quantities are not additive because that would exceed 100% of the annual capacity factor for the boiler of  $245.28 \times 10^9$  Btu input, which corresponds to the wood fuel consumption limit for this boiler. This condition's coal limit corresponds to 40% annual capacity factor. Coal is primarily used as a substitute for wood when there is not enough wood fuel during cold weather.)

(9 VAC 5-80-110, 9 VAC 5-170-160, 4-16-99 NSRPC 6)

5. Except where this permit is more restrictive than the applicable requirement, boiler #2, a wood and coal fired boiler, is to be operated in compliance with Federal requirements under 40 CFR 60 Subpart Dc, the NSPS for small industrial boilers, including this boiler.

(9 VAC 5-80-110, 9 VAC 5-80-10, 9 VAC 5-50-410, 40 CFR 60.40c et seq, 4-16-99 NSRPC 9)

6. Emissions from the operation of boiler #2, a wood and coal fired boiler, shall not exceed the limits specified below:

Total Suspended

Particulate	0.3 lbs/ $10^6$ Btu input	36.8 tons/yr
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PM-10	0.3 lbs/ $10^6$ Btu input	36.8 tons/yr
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Sulfur Dioxide 1.2 lbs/ $10^6$  Btu input emission limit on a 30 day rolling average basis for the coal burned.

38.0 lbs/hr

33.6 lbs/hr on a 30 day rolling average basis for the coal burned.

58.9 tons/yr

Nitrogen Oxides (as NO <sub>2</sub> )	13.7 lbs/hr	24.0 tons/yr
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Carbon Monoxide	23.8 lbs/hr	104.2 tons/yr
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Volatile Organic Compounds	0.4 lbs/hr	1.7 tons/yr
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Annual quantities calculated as the sum of each consecutive twelve (12) month period.

(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-10, 9 VAC 5-40-900,  
9 VAC 5-40-930, 9 VAC 5-50-410 (40 CFR 60.42c (Subpart Dc), 40 CFR  
60.42c(e)(2), (g), & (h)(3) contain SO<sub>2</sub> limits), 4-16-99 NSRPC 7)

7. Visible emissions from boiler #2, a wood and coal fired boiler, shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 27 percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-260, 9 VAC 5-50-80, 4-16-99 NSRPC 8)
8. Boiler B2 permit invalidation – The approval to construct boiler #2 shall become invalid, unless an extension is granted by the DEQ, if:
  - a. A program of continuous construction is not commenced before the latest of the following:
    - (1) April 16, 2002;
    - (2) Nine months from the date that the last permit or other authorization was issued from any other governmental agency;
    - (3) Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
  - b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.  
  
(9 VAC 5-80-110, 9 VAC 5-80-10 K, 4-16-99 NSRPC 21 with 18 months to commence construction extended 18 months to 4-16-02 by 9-14-00 approval letter)

#### **Monitoring/O & M/Recordkeeping - Boiler B2:**

The permit includes requirements for monitoring and maintaining records of all monitoring and testing required by the permit. The monitoring and records include:

1. Visible emissions periodic monitoring is required to assure control equipment maintenance and compliance with permit visible emission limits. This requires a weekly observation, and its recording, of the boiler to check for any visible emissions. If any

visible emission is observed, the condition shall be corrected and recorded, or a 40 CFR 60 Appendix A Method 9 visible emission evaluation performed and recorded to check opacity compliance. Refr. 9 VAC 5-80-110 E.

2. Develop an inspection schedule, monthly at a minimum to insure operational integrity of the boiler and multicyclones, and maintain records of inspection results.
3. Develop a maintenance schedule and maintain records of maintenance, have written operating procedures available, and train operators in the proper operation of the equipment and emission controls, and maintain an inventory of spare parts.
4. Boiler B2: The permittee shall maintain records of all emission data and operating parameters necessary to demonstrated compliance with this permit. The content of and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:
  - a. The annual hours of operation of the boiler, calculated monthly as the sum of each consecutive twelve (12) month period.
  - b. The daily, monthly and annual throughput of wood and coal for the boiler. The annual throughput shall be calculated monthly as the sum of each consecutive twelve (12) month period.

The monthly and annual particulate and sulfur dioxide emissions in tons for the boiler. The annual quantity shall be calculated monthly as the sum of each consecutive twelve (12) month period. The emission factors, control efficiencies, and emission calculation equations used in these emission calculations shall be identified and readily available.

The particulate emission limits, 0.3 lbs/million Btu and the corresponding lbs/hr and tons/yr at rated capacity continuously, are assured of compliance when burning wood or coal by the two multicyclones in series combined with operator training, maintenance and maintenance records, inspections at least monthly and inspection records, and weekly opacity checks and opacity records.

Two (2) EPA Method 5 performance tests were performed on similar boiler B1 in January, 1999 after initial startup of the boiler to verify the particulate emission compliance status. The dirtiest of the two measured emission rates was 0.262 lbs/million BTU. This demonstrated compliance with the NSR and Title V permit allowable 0.3 lbs/million BTU. When the measured 0.262 lbs/million BTU emission rate is multiplied by the 28 million BTU/hr rated capacity and 8760 hrs/yr, the maximum calculated actual emission rates are 7.34 lbs/hr and 32.1 tons/yr. All these particulate

emission rate values verify compliance with all the 0.3 lbs/million BTU, 8.4 lbs/hr and 36.8 tons/yr permit limits, as predicted for similar boiler B1.

Note that the SO<sub>2</sub> 1.2 lbs/million Btu emission limit is met by burning only (1) wood fuel (essentially no sulfur) and (2) coal meeting the permit limit of 0.75 wt % sulfur content. This coal calculates to approximately 1.02 lb/million Btu [AP-42 emission factor: (38S lb/ton) x (S=0.75) x (1/28 million Btu/ton coal) = 1.02 lb/million Btu]. Tables follow listing emission factors and comparing emission limits and the calculation of actual emissions at throughputs limits:

**Wood (primarily fuel): (1.75 tph capacity; 15,330 tpy wood limit)**

Pollutant	EF	Calc em EF x 1.75 tph	Calc em EF x 15,330/ 2000	Permit em limit	
				pph	tpy
PM & PM-10	After control 4.19* ppt	7.3 pph	32.1 tpy	8.4 pph	36.8 tpy
SO <sub>2</sub>	Negl	Negl	Negl	33.6 pph	58.9 tpy
NO <sub>x</sub>	1.5 ppt	2.6 pph	11.5 tpy	13.7 pph	24.0 tpy
CO	13.6 ppt	23.8 pph	104.2 tpy	23.8 pph	104.2 tpy
VOC	0.12 ppt	0.2 pph	0.9 tpy	0.4 pph	1.7 tpy

\*(0.262 lb/million Btu measured) x (8000 Btu/lb x 2000 lb/ton) = 4.19 lb/ton wood after control

**Coal (standby fuel): (1 tph capacity; 3504 tpy coal limit)**

Pollutant	EF	Calc em EF x 1tph	Calc em EF x 3504/2000	Permit em limit	
				Pph	tpy
PM	After control (12 x 0.30)ppt	3.6 pph	6.3 tpy	8.4 pph	36.8 tpy
PM-10	After control (7.8 x 0.30)ppt	2.3 pph	4.1 tpy	8.4 pph	36.8 tpy

SO <sub>2</sub>	(38 x 0.75) ppt	28.5 pph	49.9 tpy	33.6 pph	58.9 tpy
NO <sub>x</sub>	11.0 ppt	11.0 pph	19.3 tpy	13.7 pph	24.0 tpy
CO	5.0 ppt	5.0 pph	8.8 tpy	23.8 pph	104.2 tpy
VOC	0.05 ppt	0.05 pph	0.1 tpy	0.4 pph	1.7 tpy

Except for particulate emissions when firing wood, all emission factors are AP-42 factors. The wood firing particulate emission factor is calculated from the worst case performance test measurement on boiler B1. Because the calculated wood emission rates (the primary fuel) are at rated capacity for all 8760 hrs/yr, the calculated coal emission rates are not additive.

As seen in the above emissions tables, periodic monitoring is satisfied by the rated capacity and monitoring for meeting the fuel throughput limits which adequately limit emissions to less than all permit emission limits without control devices with the following exceptions:

- particulates have controls and are predicted to be comfortably in compliance by meeting the throughput limits combined with the above I & M and weekly visible emission checks, and periodic monitoring for these, and
- CO emissions equal, but do not exceed, the permit limits at maximum wood throughput limits because the emission limits were based on the AP-42 emission factors for wood without an added safety factor. In this case, the capacity and periodic monitoring for meeting the fuel throughput limits are adequate periodic monitoring for CO because there will be no emissions exceedance within the fuel throughput limits, actual fuel throughput is far less than the permit maximum, and the CO emission limits could be increased significantly before triggering any concern for CO ambient air quality or PSD permitting.

5. Maintain records of all stack tests, visible emissions observations and visible emission evaluations, and performance evaluations.
6. Maintain records of fuel supplier certifications with each shipment of coal as required by NSPS Dc.

(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-50, 9 VAC 5-50-410,  
4-16-99 NSRPC 6, 16, 19)



**Testing - Boiler B2:**

The permit requires NSPS Dc initial compliance determination stack testing for particulate emissions and visible emissions. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:

Pollutant	Test Method (40 CFR Part 60, Appendix A)
PM/PM-10	EPA Method 5, or DEQ approved method
SO <sub>2</sub>	Fuel analysis, EPA Method 6, or DEQ approved method
Visible Emission	EPA Method 9

(9 VAC 5-80-110)

**Reporting - Boiler B2:** Title V semi-annual reports of the results of monitoring and recordkeeping for each first and second half calendar year are required to be submitted to DEQ by each March 1 and September 1 respectively. Also, separate NSPS Dc required semi-annual reports are required to be supplied to DEQ and EPA Region III by each March 1 and September 1 for fuel certifications for each coal shipment and owner certified statement concerning all the coal combusted. Also, the results of the initial compliance determination testing for particulate emissions and visible emissions are required to be reported to DEQ and EPA.

(9 VAC 5-80-110, 9 VAC 5-80-20, 9 VAC 5-50-50, 9 VAC 5-50-410)

**EMISSION UNIT APPLICABLE REQUIREMENTS 1 - Refr W1, - Wood Working.**

This equipment group includes all of this wood furniture plant's wood working processes and equipment, including wood working, wood hogging, and wood fuel material transfers. All wood dust emission sources are controlled by baghouses (fabric filters) exhausting to atmosphere controlling their air handling systems, plus closed loop cyclone wood fuel transfer to enclosed storage bins, and any internal fabric filters without exhausts to atmosphere. The fabric filters may be preceded/ protected by optional cyclone precleaners. Fabric filters exhausting to atmosphere consist of two (2) 54,000 acfm baghouses/air handling systems, and one (1) 28,000 acfm baghouse/air handling system.

The entire wood working process is covered by the 8-28-96 NSR permit, reissued 5-3-01, to build a new furniture plant at a green field site. The 1996 NSR permit limits the overall woodworking throughput to 7,000,000 Brd-ft/yr. The 1996 NSR permit contains additional wood working conditions, which also are rolled over into this Title V permit. There is no applicable NSPS (40 CFR 60) at this time for this process. The wood furniture plant MACT (40 CFR 63 Subpart JJ) does not apply to the woodworking materials and processes that are currently used at this plant.

**Limitations - Wood Working:**

1. *Dust controls:* Particulate emissions from all woodworking/wood dust emission points to atmosphere (Refr. W1) for the total facility, including all wood working equipment, wood hogging, and wood fuel material transfers, shall be controlled by baghouses (fabric filters), unless controlled by closed loop cyclones without unfiltered emissions, or internal fabric filters without exhausts to atmosphere, or DEQ approved equivalent. The fabric filters shall be provided with adequate access for inspection and maintained by the permittee such that they are in proper working order.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 **NSRPC**\* 2, 14, 15)  
\* **NSRPC** = New Source Review Permit Condition
2. *Dust controls:* Fugitive particulate emissions from the collection and transferring of collected wood fuel shall be controlled by (a) covering of all conveyors or (b) complete enclosure, at a minimum.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 16)
3. *Throughput limit:* The annual throughput of wood for the woodworking operation (Refr. W1) shall not exceed 7, 000,000 Brd-ft/yr, calculated monthly as the sum of each consecutive twelve (12) month period.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-170-160, 8-28-96 NSRPC 18)
4. *Emissions limits:* Particulate emissions from the woodworking operation (Refr. W1) shall not exceed the limits specified below:

Total Suspended Particulate	23.3 tons/yr
PM-10	23.3 tons/yr

For each of the (two) 54,000 acfm baghouses/air handling systems the emissions

shall not exceed the limits specified below:

Total Suspended Particulate	0.01 grain/dscf4.7 lbs/ hr
PM-10	0.01 grain/dscf4.7 lbs/hr

For the 28,000 acfm baghouse/air handling system the emissions shall not exceed the limits specified below:

Total Suspended  
Particulate                      0.01 grain/dscf2.4 lbs/ hr

PM-10                              0.01 grain/dscf2.4 lbs/hr

Annual quantities calculated as the sum of each consecutive twelve (12) month period.

(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-10D, 9 VAC 5-40-2270, 8-28-96 NSRPC 19)

5. *Visible emissions:* Visible emissions from each baghouse (fabric filter) exhausting to atmosphere for each wood dust emission point shall not exceed five (5) percent opacity, except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-80, 9 VAC 5-50-260, 8-28-96 NSRPC 20)
6. *Visible emissions:* Visible emissions from any fugitive dust emission points shall not exceed ten (10) percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-80, 9 VAC 5-50-260, 8-28-96 NSRPC 21)

#### **Monitoring/O & M/Recordkeeping - Wood Working:**

The permit includes requirements for monitoring and maintaining records of all monitoring and testing required by the permit. The monitoring and records include:

1. Visible emissions periodic monitoring is required to assure control equipment maintenance and compliance with permit visible emission limits. This requires a weekly observation, and its recording, of each emission point in this emissions group to check for any visible emission. If any visible emission is observed, the condition shall be corrected and recorded, or a 40 CFR 60 Appendix A Method 9 visible emission evaluation performed and recorded to check opacity compliance. This requirement is to assure good control of particulate emissions. Refr. 9 VAC 5-80-110 E.
2. The pressure drop across each baghouse shall be continuously measured and recorded weekly. This requirement is to help assure good control of particulate emissions.

3. Develop an inspection schedule, monthly at a minimum, to insure the operational integrity of the fabric filters, and maintain records of inspection results.
4. Develop a maintenance schedule and maintain records of maintenance, have written operating procedures available, train operators in the proper operation of the equipment and controls affecting emissions, and maintain an inventory of spare parts needed to maintain the fabric filters in proper working order to minimize emissions.
5. The monthly and annual throughput of wood for the overall woodworking operation shall be calculated monthly as the sum of each consecutive twelve (12) month period.
6. Title V periodic monitoring to assure meeting the particulate emission limits is satisfied by the periodic monitoring that assures good baghouse operation and maintenance, periodic inspections and recordkeeping, and periodic visible emission observations to assure that the 5% opacity requirements are met (normally zero opacity), and the air handling system capacity is not increased.

(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-50)

**Testing - Wood Working:** The permit does not require source tests for this process. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

1. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:

Pollutant	Test Method (40 CFR Part 60, Appendix A)
PM/PM-10	EPA Method 5, or DEQ approved method.
Visible Emission	EPA Method 9

(9 VAC 5-80-110)

**Reporting - Wood Working:** Title V semi-annual reports of the results of monitoring and recordkeeping for each first and second half calendar year are required to be submitted to DEQ by each March 1 and September 1 respectively.

## **EMISSION UNIT APPLICABLE REQUIREMENTS 2 - Refr. F1 - Finishing.**

This group includes all finishing (coating) operations for this plant. It includes all finishing related VOC emissions, but not gluing which is a separate section below. The wood furniture MACT, 40 CFR 63 Subpart JJ, does apply to this finishing as a new source constructed after the December 7, 1995 MACT applicability date. The plant's primary methods for meeting the MACT are to normally use only compliant coatings and/or average finish material VHAP content, as required. There is no applicable NSPS (40 CFR 60) for this process at this time.

The 8-28-96 NSR permit, reissued 5-3-01, to construct the plant has applicable requirements for finishing, which are rolled over into this Title V permit. Finishing includes 12 on-line spray booths, 3 off-line spray booths, and related ovens.

### **Limitations - Finishing:**

1. *Overspray particulate controls:* Overspray particulate emissions from each finishing spray booth shall be controlled by spray booth dry fiberglass filters or equivalent at a minimum. The overspray particulate controls shall be provided with adequate access for inspection and maintained by the permittee such that they are in proper working order. (9 VAC 5-80-110, 9 VAC 5-50-260; 8-28-96 **NSRPC**\* 24)  
\* **NSRPC** = New Source Review Permit Condition
2. *Spray guns:* Volatile organic compound (VOC) emissions from the spray booths shall be minimized by the use of airless spray nozzles (instead of conventional spray guns). (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 26)
3. *Throughput limit:* The throughput of volatile organic compounds (VOC) in finishing operations shall not exceed 232 tons per year, calculated monthly as the sum of each consecutive twelve (12) month period. This throughput limit was created for the Title V permit to help satisfy EPA's requests to be enforceable as a practical matter, and is part of the Title V periodic monitoring to assure compliance with the VOC emission limit by recordkeeping of VOC throughput. This is the same quantity as the VOC emission limit because all the VOC that is considered to be throughput does evaporate to atmosphere. (9 VAC 5-80-110, 9 VAC 5-80-110 E, 9 VAC 5-50-20, 9 VAC 5-170-160)
4. *Throughput limit:* The throughput of volatile organic compounds (VOC) in finishing operations shall not exceed 38.7 tons per month. This monthly limit was created for the Title V permit to help satisfy EPA's requests to be enforceable as a practical matter, and is part of the Title V periodic monitoring to assure compliance with the VOC emission limit by recordkeeping of VOC throughput. It allows for high throughput months at up to twice the annual average. (9 VAC 5-80-110, 9 VAC 5-80-110 E, 9 VAC 5-50-20, 9 VAC 5-170-160)

5. *Emissions limits:* Emissions from finishing operations shall not exceed the limits specified below:

Total Suspended Particulate	38.7 lbs/hr	55.6 ton/yr
PM-10	38.7 lbs/hr	55.6 ton/yr
Volatile Organic Compounds	323.0 lbs/hr	232.0 tons.yr

Annual quantities calculated as the sum of each consecutive twelve (12) month period.

(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 9 VAC 5-80-1700, 8-28-96 NSRPC 27)

6. *Visible emissions limit:* Visible emissions from each finishing spray booth shall not exceed five (5) percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 27)

#### **Monitoring/O & M/Recordkeeping - Finishing:**

The permit includes requirements for monitoring and maintaining records of all monitoring and testing required by the permit. The monitoring and records include:

1. Visible emissions periodic monitoring is required to assure control equipment maintenance and compliance with permit visible emission limits. This requires a weekly observation, and its recording, of each operating emission point in this emissions group to check for any visible emission. If any visible emission is observed, the condition shall be corrected and recorded, or a 40 CFR 60 Appendix A Method 9 visible emission evaluation performed and recorded to check opacity compliance. This requirement is to assure good control of overspray particulates. Refr. 9 VAC 5-80-110 E.
2. Develop an inspection schedule, monthly at a minimum, to insure the operational integrity of the overspray collectors, and maintain records of inspection results.
3. Develop a maintenance schedule and maintain records of maintenance, have written operating procedures available, train operators in the proper operation of the equipment, and maintain an inventory of spare parts needed to maintain the overspray collectors in proper working order to minimize emissions.

4. The permittee shall maintain records of all finishing emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:

a. *Throughput:* Monthly and annual throughput of finish and related materials containing VOC in gallons, tons of solids in coatings, and the throughput of VOC in tons for the VOC content of finish and related material for finishing operations. The VOC content shall be based on Certified Product Data Sheets, 40 CFR 60 Appendix A method 24, or DEQ approved equivalent. The annual quantities shall be calculated monthly as the sum of each consecutive twelve (12) month period.

b. *Emissions:* Monthly and *annual* VOC and particulate emissions in tons from finishing and related materials containing VOC, and the material balance of VOC and solids/particulates for these materials. The VOC content shall be based on Certified Product Data Sheets, 40 CFR 60 Appendix A method 24, or DEQ approved equivalent. The annual quantities shall be calculated monthly as the sum of each consecutive twelve (12) month period. The emission factors and emission calculation equations used in these emission calculations shall be identified and readily available. (Except for VOCs removed from the facility as waste or liquid, all the VOC throughput evaporates on-site.)

The equation to calculate VOC emissions follows:

VOC emissions = VOC throughput.

VOC throughput = VOC received - VOC removed as liquid waste or unused material.

- c. *Additional records* as required by the rest of this Monitoring and Recordkeeping section.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-50, 8-28-96 NSRPC 29, 58, 59)

**Testing - Finishing:** The permit does not require source tests for this process. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

1. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:



Pollutant	Test Method (40 CFR Part 60, Appendix A)
Visible Emissions	EPA Method 9
VOC	40 CFR 63 Subpart JJ Wood Furniture MACT Certified Product Data Sheets, 40 CFR 60 Appendix A method 24, or DEQ approved equivalent.

**Reporting - Finishing:** Title V semi-annual reports of the results of monitoring and recordkeeping for each first and second half calendar year are required to be submitted to DEQ by each March 1 and September 1 respectively. Also, separate reports required by the wood furniture manufacturing MACT, 40 CFR 63 Subpart JJ, shall be submitted to DEQ and EPA by each March 1 and September 1 respectively.

### **EMISSION UNIT APPLICABLE REQUIREMENTS 3 - Refr. G1 - Gluing.**

Gluing means all gluing/adhesives for this plant. Currently, gluing is similar to many wood furniture plants in that the materials and processes used do not trigger the wood furniture MACT, 40 CFR 63 Subpart JJ. Also, gluing VOC throughput and emissions are inherently less than 5 tons/yr. There are no VOC emission controls on gluing. There is no glue spraying to need overspray particulate controls or cause overspray particulate emissions.

The 8-28-96 NSR permit, reissued 5-3-01, to construct the plant has applicable requirements for gluing.

#### **A. Limitations - Gluing**

1. *Minimize VOC:* Volatile Organic Compound (VOC) emissions from glue application systems shall be minimized by the use of low VOC or water-based adhesives, the use of hot-melt adhesives, or adhesives curable by high frequency.  
(9 VAC 5-80-110, 9 VAC 5-50-260; 9 VAC 5-170-160, 8-28-96 **NSRPC**\* 40)  
\* **NSRPC** = New Source Review Permit Condition
2. *Emissions limits:* Emissions from the operation of the glue application systems shall not exceed the limits specified below:

Volatile Organic Compounds                      1.7 lbs/hr                      3.3 tons.yr

Annual quantities calculated as the sum of each consecutive twelve (12) month period.

(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 41)

3. *Visible emissions limit:* Visible emissions from the facility glue application systems shall not exceed five (5) percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity. This condition applies to any process emission points to the outside atmosphere, if there are any.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 42)

**Monitoring/O & M/Recordkeeping - Gluing:**

The permit includes requirements for monitoring and maintaining records of all monitoring and testing required by the permit. The monitoring and records include:

1. Visible emissions periodic monitoring is required to assure control equipment maintenance and compliance with permit visible emission limits. This requires a weekly observation, and its recording, of each operating emission point to atmosphere in this emissions group, if there are any gluing process emission points to atmosphere, to check for any visible emission. If any visible emission is observed, the condition shall be corrected and recorded, or a 40 CFR 60 Appendix A Method 9 visible emission evaluation performed and recorded to check opacity compliance. This requirement is to assure good control of overspray particulates. Refr. 9 VAC 5-80-110 E.
2. Develop an inspection schedule, monthly at a minimum, to insure the operational integrity of equipment affecting the amount of emissions and maintain records of inspection results.
3. Develop a maintenance schedule and maintain records of maintenance, have written operating procedures available, train operators in the proper operation of the equipment, and maintain an inventory of spare parts needed to maintain the proper working order of equipment affecting the amount of emissions in order to minimize emissions.
4. The permittee shall maintain records of all gluing emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:
  - a. *Throughput:* Monthly and annual throughput of glues, and any other information necessary to determine monthly and annual VOC emission quantities. The VOC content shall be based on Certified Product Data Sheets, 40 CFR 60 Appendix A method 24, or DEQ approved equivalent. The annual quantities shall be calculated monthly as the sum of each consecutive twelve (12) month period.
  - b. *Emissions:* Monthly and *annual* VOC emissions in tons and material balance for gluing operations. The VOC content shall be based on Certified Product Data Sheets, 40 CFR 60 Appendix A method 24, or DEQ approved equivalent. The annual

quantities shall be calculated monthly as the sum of each consecutive twelve (12) month period. The emission factors and emission calculation equations used in these emission calculations shall be identified and readily available.

- c. *Additional records* as required by the rest of this Monitoring and Recordkeeping section.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-50, 8-28-96 NSRPC 44)

**Testing - Gluing:** The permit does not require source tests for this process. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

1. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:

Pollutant	Test Method (40 CFR Part 60, Appendix A)
Visible Emissions	EPA Method 9
VOC	40 CFR 63 Subpart JJ Wood Furniture MACT Certified Product Data Sheets, 40 CFR 60 Appendix A method 24, or DEQ approved equivalent.

**Reporting - Gluing:** Title V semi-annual reports of the results of monitoring and recordkeeping for each first and second half calendar year are required to be submitted to DEQ by each March 1 and September 1 respectively. If any gluing emission substance, quantity, or otherwise requires 40 CFR 63 Subpart JJ Wood Furniture MACT reporting, it shall be reported separately to DEQ and EPA by each March 1 and September 1 respectively.

#### **EMISSION UNIT APPLICABLE REQUIREMENTS 4 - Refr. MISC. - Miscellaneous.**

“Miscellaneous” is a grouping that currently consists of (a) Lumber Drying Kilns K1, K2, and K3 combined, and (b) one emergency diesel Fire Pump (FP). These would normally be listed as insignificant sources in this Title V permit with less than 5 tons/yr potential to emit. However, they cannot be listed as insignificant in this Title V permit because they have applicable limitations in the 8-28-96 NSR permit to construct the plant, reissued 5-3-01, for the sake of a thoroughly complete NSR permit. So they are carried over into the Title V

permit, but only in a miscellaneous section. No 40 CFR 60 NSPS nor 40 CFR 63 MACT currently apply to anything in this group.

The kilns dry hardwood lumber. Capacities are 60,000 Brd-ft for K1, and 80,000 Brd-ft each for K2 and K3. These are the capacities per load. A load takes a week to dry, so the annual drying capacity is 11,440,000 Brd-ft. The capacity of the emergency diesel fire pump is between 231 and 500 hp.

**A. Limitations – Misc.**

1. *Kilns, throughput:* The annual throughput of wood to the lumber drying kilns #1, #2, and #3 combined shall not exceed 11,440,000 board feet of hardwood, calculated as the sum of each consecutive 12 month period.

(9 VAC 5-80-110, 9 VAC 5-170-160, 8-28-96 NSRPC\* 46)

\* NSRPC = New Source Review Permit Condition

2. *Kilns, emissions limits:* Emissions from the operation of these kilns shall not exceed the limits specified below:

Volatile Organic Compounds	0.4 lbs/hr	1.2 tons.yr
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Annual quantities calculated as the sum of each consecutive twelve (12) month period.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 47)

3. *Kilns, visible emissions limit:* Visible emissions from these kilns shall not exceed five (5) percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.

(9 VAC 5-80-110, 9 VAC 5-170-160, 8-28-96 NSRPC 48)

4. *Fire pump:* The diesel fire pump is to be used only for emergency fire suppression at the facility, fire training for facility personnel, and for periodic testing and maintenance.

(9 VAC 5-80-110, 9 VAC 5-170-160, 8-28-96 NSRPC\* 51)

5. *Fire pump:* The diesel fire pump shall not operate more than 300 hours per year.

(9 VAC 5-80-110, 9 VAC 5-170-160, 8-28-96 NSRPC\* 52)

6. *Fire pump, emissions limits:* Emissions from the operation of the fire pump shall not exceed the limits specified below:

Nitrogen Oxides (as NO <sub>2</sub> )	7.2 lbs/hr	1.1 tons.yr
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Annual quantities calculated as the sum of each consecutive twelve (12) month period.  
(9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-170-160, 8-28-96 NSRPC 53)

7. *Fire pump, visible emissions limit:* Visible emissions from the fire pump engine shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.  
(9 VAC 5-80-110, 9 VAC 5-50-80)

**Monitoring/O & M/Recordkeeping - Misc.:**

The permit includes requirements for monitoring and maintaining records of all monitoring and testing required by the permit. The monitoring and records include:

1. Visible emissions periodic monitoring is required to assure control equipment and process control maintenance and compliance with permit visible emission limits. This requires a weekly observation, and its recording, of each operating emission point to atmosphere in this emissions group to check for any visible emission. If any visible emission is observed, the condition shall be corrected and recorded, or a 40 CFR 60 Appendix A Method 9 visible emission evaluation performed and recorded to check opacity compliance. This requirement is to assure good control of emissions. Refr. 9 VAC 5-80-110 E.
2. Develop an inspection schedule, monthly at a minimum, to insure the operational integrity of equipment affecting the amount of emissions and maintain records of inspection results.
3. Develop a maintenance schedule and maintain records of maintenance, have written operating procedures available, train operators in the proper operation of the equipment, and maintain an inventory of spare parts needed to maintain the proper working order of equipment affecting the amount of emissions in order to minimize emissions.
4. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit for this process group. The content

of and format of such records shall be arranged with the Director, West Central Regional Office. These records shall include, but are not limited to:

- a. *Throughput:* For drying kilns K1 - K3 combined, the monthly and annual throughput of wood. The annual quantities shall be calculated monthly as the sum of each consecutive twelve (12) month period. The drying kilns will inherently meet their emission limits by meeting the annual throughput limit because the annual throughput limit and rated capacity are the bases for the emission limits for hardwood lumber drying, which is what this plant does (not softwood) (emission factor is 0.211 lbs VOC/1000 Brd Ft.). Also, the monthly and annual lumber throughput

recordkeeping are applicable requirements rolled over from the 8-28-96 NSR permit.

b. *Hours:* For the emergency diesel fire pump, the monthly and annual hours of operation. The annual quantities shall be calculated monthly as the sum of each consecutive twelve (12) month period. The emergency diesel fire pump will inherently meet its emission limits by meeting the 300 hrs/yr use limit because 300 hrs/yr at rated capacity is the basis for the emission limits, along with AP-42 emission factors and as long as the engine is operating properly. Also, the monthly and annual hours of operation recordkeeping are applicable requirements rolled over from the 8-28-96 NSR permit.

c. *Additional records* as required by the rest of this Monitoring and Recordkeeping section.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.

(9 VAC 5-80-110, 9 VAC 5-50-20, 9 VAC 5-50-50, 8-28-96 NSRPC 50 and 54)

**Testing - Misc.:** The permit does not require source tests for this group. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

1. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:

Pollutant	Test Method (40 CFR Part 60, Appendix A)
Visible Emissions	EPA Method 9
Lumber Drying Kiln VOC	To be determined by DEQ when and if there is testing.
Emergency Fire Pump Diesel Engine	To be determined by DEQ when and if there is testing.

(9 VAC 5-80-110)

**Reporting - Misc.:** Title V semi-annual reports of the results of monitoring and recordkeeping for each first and second half calendar year are required to be submitted to DEQ by each March 1 and September 1 respectively.

**EMISSION UNIT APPLICABLE REQUIREMENTS - Facility Wide Conditions - 1.**  
**40 CFR 63 Subpart JJ (Wood Furniture MACT).**

This MACT is applicable to this plant as a new source constructed after the MACT 12-7-95 applicability date. The compliance date was at startup. The plant is in compliance with the MACT. The facility is required to be operated in compliance with the MACT. Much of this MACT (several pages) is repeated in this Title V permit under the section on facility wide conditions and is a roll over from the 8-28-96 NSR permit, reissued 5-3-01. For the materials and processes currently used at this plant, the principal portion of the MACT that is applicable to this facility concerns the VHAPS in much of finishing. The plant's principal way of meeting the MACT is to use only MACT compliant coatings.

**STREAMLINED REQUIREMENTS**

Streamlining 1: Boilers 1 and 2; SO<sub>2</sub> emissions limits for each boiler:

The 9 VAC 5-50-10 D / 9 VAC 5-40-930 SO<sub>2</sub> emission limit of 2.64 lb per million Btu input for each of boilers 1 and 2 is streamlined out of the Title V permit by incorporating the more restrictive applicable requirement of 1.2 lb/million Btu input emission limit on a 30 day rolling average basis for the coal burned per 40 CFR 60 Subpart Dc (NSPS Dc). NSPS Dc is applicable to boilers, B1 and B2. B2 is not yet constructed.

Also, the 66.6 tons/yr SO<sub>2</sub> emission limits in the original 8-28-96 NSR permit for boiler B1 and in the original 4-16-99 NSR permit for boiler B2 are streamlined out to the more restrictive 58.9 tons/yr SO<sub>2</sub> emissions limits for the Title V permit for each boiler to reflect the corrected tighter quantities in the NSR permits reissued 5-3-01 and 5-4-01 respectively. These corrected errors in the original permits. This more restrictive value in the Title V permit is based on the NSPS Dc (40 CFR 60 Subpart Dc) applicable requirement of 1.2 lbs/million Btu input for coal burned as follows:  $[1.2 \text{ lbs/million Btu} \times 3504 \text{ tons/yr coal permit limit} \times (14,000 \text{ Btu/lb} \times 2000 \text{ ppt} = 28 \text{ million Btu/ton}) \times 1/2000 \text{ ppt} = 58.9 \text{ tpy SO}_2]$ .

In addition, the Title V permit (a) adds the applicable requirement of 1.2 lb/million Btu input SO<sub>2</sub> emission limit on a 30 day rolling average basis for the amount of coal burned per NSPS Dc, and (b) adds 33.6 lbs/hr SO<sub>2</sub> emission limit on a 30 day rolling average basis for the amount of coal burned. The 33.6 lbs/hr value is the NSPS Dc 1.2 lbs/million Btu applicable requirement times the 28 million Btu/hr input rated capacity. The higher 38.0 lbs/hr SO<sub>2</sub> emission limits from the two NSR permits are rolled over into the Title V permit because this value is on a shorter time basis than the NSPS Dc 30 day rolling average basis and can allow for shorter term variability in the sulfur content of coal burned.

Streamlining 2: Boilers 1 and 2; PM & PM-10 emissions limits:

The 9 VAC 5-50-10 D / 9 VAC 5-40-900 emission limit of 0.46 lb PM & PM-10 per million Btu input for each of boilers 1 and 2 is streamlined out by needing to roll over into Title V the more restrictive 0.3 lb/million Btu input from the 8-28-96 NSR permit, reissued 5-3-01, for boiler 1 (per BACT) and from the 4-16-99 NSR permit, reissued 5-4-01, for boiler B2 (per BACT).

Streamlining 3: Wood Working; PM & PM-10 emissions limits:

The 9 VAC 5-50-10 D / 9 VAC 5-40-2270 PM & PM-10 emission limit of 0.05 grains/dscf of exhaust gas is streamlined out by needing to roll over into Title V the more restrictive limit of 0.01 grain/dscf of exhaust gas from the 8-28-96 NSR permit condition 19 (per BACT).

Streamlining 4: Visible Emissions (5% / 30%):

The 20% opacity value in regulation 9 VAC 5-50-80 limiting visible emissions to 20% opacity except for 30% during one six minute period per hour is streamlined out of the Title V permit by needing to roll over into Title V the more restrictive limitation of 5% opacity except for 30% during one six minute period per hour from the 8-28-96 NSR permit as applicable. This is applicable to the following processes:

W1 Woodworking;

F1 Finishing;

G1 Gluing;

lumber drying Kiln group #1 - #3 in Miscellaneous (but not the emergency diesel fire pump in Misc.);

the coal storage Silo accompanying the boiler B1 limitations (but not boiler B1 itself).

The NSR permit 5% instead of 20% limit represents BACT and helps provide assurance that these emissions units and controls are operating properly and meeting the permit particulate emissions limits.

Streamlining 5: Boilers B1 and B2; Visible Emissions (20% / 27%):

The 30 % opacity value in regulation 9 VAC 5-50-80 limiting visible emissions to 20% opacity except for 30% during one six minute period per hour is streamlined out of the Title V permit by needing to roll over into Title V the more restrictive limitation of 20% opacity except for 27% during one six minute period per hour from the 8-28-96 NSR permit condition 10 for boiler B1 and from the 4-16-99 NSR permit condition 8 for boiler B2. The one six minute per hour limit of 27% opacity instead of 30% in the NSR permits represents BACT. NSPS Dc does not have an opacity limit for these boilers because each boiler is smaller than 30 million Btu/hr input capacity.



**Streamlining 6: Compliance Determinations:**

The parts of various NSR permit conditions that limit what can be used to determine compliance are streamlined out by not rolling them over into the Title V permit because it is inappropriate for a Title V permit to limit the means of determining compliance, such as use of additional information, updated information, stack testing, CEMS, etc. This applies to the following NSR permit conditions:

- 8-28-96 NSR permit condition 19 for woodworking emission limits;
- 8-28-96 NSR permit condition 41 for gluing emission limits;
- 8-28-96 NSR permit condition 47 for lumber drying kilns K1-K3 emission limits;
- 4-16-99 NSR permit condition 7 for boiler B2 emission limits;

**Streamlining 7: Obsolete conditions:** The woodworking fugitive dust control option to have conveyors that are required to be covered was not used in constructing the plant and so is obsolete and not carried over to the Title V permit from the original 8-28-96 NSR permit. The plant has been constructed with better totally enclosed conveying with any emissions controlled by fabric filters.

**Streamlining 8: Obsolete conditions:** Except for the 4-16-99 NSR permit for boiler B2 which has not been installed at this writing in June, 2001, the conditions in the NSR permits are streamlined out which deal with new equipment installation time frames and startup initial notifications, initial visible emissions evaluations, and initial stack tests because these conditions are obsolete due to having been completed for all permitted equipment.

**GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or excess emissions, including those caused by upsets, within four daytime business hours.

**STATE ONLY APPLICABLE REQUIREMENTS**

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

NA. Except for not rolling over into the Title V permit the state only toxics because they are in a state only section of the 8-28-96 NSR permit, reissued 5-3-01, and the 4-16-99 NSR permit, reissued 5-4-01, there is no specific limit for any state only toxic pollutant in any NSR permit for this facility.

**FUTURE APPLICABLE REQUIREMENTS**

NA.

### **INAPPLICABLE REQUIREMENTS**

The particulate and opacity portions of 40 CFR 60 Subpart Dc (NSPS Dc) do not apply to boilers B1 and B2 because they are smaller than 30 million BTU/hr input rated capacity (other portions of NSPS Dc do apply).

### **COMPLIANCE PLAN**

NA because this facility is considered to be in compliance.

### **INSIGNIFICANT EMISSION UNITS**

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

The following emission units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (5-80-720 C)
K4	Lumber Drying Kiln #4	9 VAC 5-80-720 B	VOC	80,000 Brd-ft/weekly load.
NA	Maintenance Parts Washer	9 VAC 5-80-720 A		NA

### **CONFIDENTIAL INFORMATION**

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

### **PUBLIC PARTICIPATION**

A public notice regarding the draft permit was published in the June 3, 2001 edition of the *Martinsville Bulletin*. Public comments were accepted from June 3, 2001 through July, 5, 2001. The only comments received were EPA comments dated June 6, 2001. All have been addressed in the proposed permit and proposed SOB and carried over into the issued permit.

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